

THE TECH

VOL. XX.

BOSTON, OCTOBER 18, 1900.

NO. 3.

THE TECH

Published every Thursday, during the college year, by students of the Massachusetts Institute of Technology.

HENRY HODGMAN SAYLOR, 1902, *Editor in Chief.*

JOHN CLYDE FRUIT, 1902, *Assistant Editor in Chief.*

WALTER H. FARMER, 1902, *Secretary.*

H. S. MAXSON, 1901.

ROBERT WHITE, JR., 1901.

I. R. ADAMS, 1902.

C. A. SAWYER, JR., 1902.

K. W. ENDRES, 1903.

ALBERT E. LOMBARD, 1902, *Business Manager.*

ARTHUR S. MORE, 1902, *Assistant Business Managers.*

HARRY A. STILES, 1903.

OFFICE HOURS:

Editor in Chief,
Business Manager,

Monday, 10-11 A. M.
Saturday, 12-1 P. M.

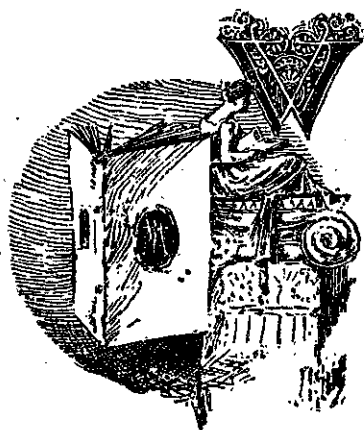
For the benefit of students THE TECH will be pleased to answer all questions and obtain all possible information pertaining to any department of the College.

Contributions are requested from all undergraduates, alumni, and officers of instruction. No anonymous manuscript can be accepted.

Subscription, \$2.00 per year, in advance. Single copies, 10 cts. each.

Entered in Post Office, Boston, Mass., as Second-Class Matter.

Press of Lounsbury Nichols & Worth Company.



E are glad to notice the increase of interest in Football at the Institute. The coaching of Mr. Crolius and the securing of Irvington Oval for practice have proved to be strong inducements for men to come out, and the good show-

ing the team has made in the games played is most encouraging. When one considers that at Harvard seventy-five or more men turn out for the squad, and at Princeton, there being the same number of students as here, forty or fifty men try, it does seem as though

we should have at least twenty-five out. Of course it may be said that pressure of work forbids, but another side of the question is that with regular active exercise a man will do the same work better and in less time. It is hoped that the Stevens game on Saturday will receive enough support in cheering and attendance to encourage the team and bring us the victory.



T is with great pleasure that THE TECH observes the interest with which the Freshmen are taking up military drill. This is due in a great measure to the personality of the new instructor, Captain Baird, who appears to be about to become as popular with the students as Captain Bigelow was of old. A subject like military science will never be popular for itself, but the success with which such a subject is completed depends largely upon the instructor to whom it is entrusted. THE TECH feels confident in saying, even at this early stage, that a better gentleman and one more competent to deal with a class of young men could not have been found. The attempt of the Freshmen to form a military band not only reflects credit on the enterprise of the class, but also on the instructor, for it is an added proof of the interest that is taken in the subjects.

There will be issued on Thursday, October 25th, a Souvenir Inauguration Number, containing the speeches in full and half-tone insertions. It will be a specimen of the best printing of the nineteenth century.

The Inauguration of Dr. Pritchett.

On Thursday last Dr. Pritchett addressed the student body in Huntington Hall. His remarks were brief and relating to the Inaugural Exercises next Wednesday. The whole auditorium is to be reserved for the students, the guests filling the galleries. The plan for assembling, entrance and seating is given below. If faithfully carried out, each man doing his own part quickly and well, the scene of the large student-body entering quietly and with dignity cannot fail to be impressive.

Among the speakers are Bishop Lawrence, Senator Henry Cabot Lodge, President James Mason Crafts, and the President-Elect, Henry Smith Pritchett.

As the success of the afternoon will, in a great measure, depend upon the promptitude and dignity with which each student deports himself, the following arrangement for seating the student-body is earnestly recommended to its attention.

Students are expected to be in the assembly rooms of Symphony Hall, corner of Massachusetts and Huntington Aves., not later than 1.15 P.M. In case of rain, when umbrellas and coats will have to be checked, at least fifteen minutes more should be allowed.

The young women studying at the Institute will receive individual tickets and a block of seats in the east-centre of the auditorium will be reserved for them.

Each student, on entering the hall, should go at once to the assembly room for his class, check his coat and hat in the room provided for that purpose (which in each case will open from the assembly room) and form in single line under the direction of the ushers in charge.

The Fourth and Third year students will enter the hall from the passage way off St. Stephen St., and will assemble in the Tuning room on the first floor. The coat room for

the Seniors and Juniors will be arranged directly under the Tuning room.

The Second year students will enter from Huntington Avenue, by door at the extreme west, and will assemble in the west corridor on the first floor. The coat room will be on the left as they enter the corridor.

The First year students will enter from Huntington Avenue, by door at the extreme west, take staircase at the immediate left of the entrance, and assemble in the Foyer on the second floor. A coat room will be arranged for them in the east end of the Foyer.

At twenty-five minutes before two, the west front stairway will be roped off, being used after that time only by members of the Faculty.

In the assembly room for Seniors and Juniors will be ushers whose duty will be to arrange the students in single line, as soon as coats and hats have been checked. Two of these ushers will be the Presidents of their respective classes, and will lead their classes in the procession to the auditorium.

At each of the other assembly rooms, there will be two ushers and one aide with duties similar to those in the fourth-year room. One of the ushers in each room will be the president of the class.

The Fourth year students, headed by the President of the class, will hold themselves in readiness to enter the auditorium at precisely fifteen minutes before two, when called by their aide.

The Juniors, headed by their president, will follow immediately behind the last man in the Senior line.

The Second year students headed by their president, will hold themselves in readiness to enter the auditorium as soon as the Seniors are seated. They will be called for by their aide.

The Freshmen, headed by their President, will march down stairs to the entrance to the

west corridor on the first floor, and hold themselves in readiness to enter the auditorium as soon as the Sophomores have been seated. They will be called by their aide.

Thus as soon as the Seniors are seated, there will be three lines entering the auditorium at once.

The students will be seated at once on finding their places, and remain seated until, at the close of the President's address, he turns to speak to the student-body. They will then rise *en masse* and remain standing until the end of the address, when they will resume their seats and remain seated for a moment or so after the guests and Faculty have left the hall.

There will be no order for dispersing.

The Cleofan Reception.

A reception was held on Wednesday the 10th, in the Margaret Cheney Room to meet Mrs. Pritchett. Mrs. Richards, Mrs. Talbot and Mrs. Lanza, assisted in receiving, and Mrs. Bartlett and Mrs. Allen presided at the tea table. Mrs. Cheney and Mrs. Walker were among the guests.

The officers of the Cleofan for the present year have been elected and are as follows: President, Miss Gallup, '01; Vice-President, Miss Beckler, '02; Secretary, Miss Ava Stoddard, '03; Treasurer, Miss Hill, '02. The society has held two meetings before this one; the first a reception to the Freshmen, and the second a reception to President Pritchett.

The Society of Arts.

The 542d regular meeting of the Society of Arts was held at the Institute on Thursday evening, October 11th. Mr. Louis Derr, '92, gave an exceedingly interesting talk on "Color Photography." The lecture was beautifully illustrated by the stereopticon and the audience passed a thoroughly enjoyable evening.

Political Opinions of Undergraduates.

The statistics of the political opinions of the undergraduate body have been specially determined for THE TECH and are given in tabulated form below. There seemed to be little hesitancy on the part of those who avowed themselves Democrats, and that the uncertainty was much more marked with many who held Republican views. Numerically there were few who were undecided, either from ignorance of the features of the campaign or from lack of interest in the political struggle. Among the Democrats about fifty per cent. were "Gold Democrats," but the remaining half had no reservations. The figures presented below are as accurate as was possible to make them. The interest in the question was considerable and the figures will be somewhat different from what might have been expected after the published political declarations of members of the Faculty.

The results of polling the Faculty for the Presidential choice show sixteen out of twenty-nine for Major McKinley. Several are undecided, others non-committal, but none for Mr. Bryan.

The total number of students interviewed was 595. The results were: Republicans, 434; Democrats, 126; Independents and scattering, 35. In the Senior Class the relative proportion of Republicans to Democrats was five to two. In the Junior Class the ratio was two to one. In the Sophomore Class the ratio was seven to one and in the Freshmen Class the proportion was the same. In no course did the Democrats have a majority although among the fourth year, Course VI. men, the ratio was twelve Democrats to nineteen Republicans. The change in the ratio of the two upper and two lower classes is an interesting point and is not easily explained. The figures given cover over half the whole student body and may therefore be taken as representative.

Suggestions Relating to Graduate Work in Germany.

At the request of the Board of Publication of THE TECH, the following article was written in the hope that it might be of service to students contemplating graduate work in science. No comparison of the relative advantages of the universities of England, the continent, and the United States for graduate study will be made. It is assumed that for good and sufficient reasons the period of advanced study is to be spent in Germany.

For the larger proportion of Technology students graduation signifies the entrance into the activities of the professional and technical world. To a few, however, and their number is increasing, the realization of their ignorance in the presence of the inexhaustible treasures of science, art, music, literature, indeed of life, awakens a longing for an unfolding and enrichment of the whole nature before entering upon the absorbing commercial and professional work. This desire for a broader, a more complete acquaintance with the chosen profession, and incidentally with what the world has to offer in other fields, arouses the love for graduate work. Assuming that Germany has been selected as the most attractive field for study, the important questions become, *with whom and where to study*. An American graduate of a German university will appreciate the gravity of these questions upon whose wise solution the success of the European period of study largely depends.

The system in vogue in German universities is entirely different from our own. On completion of the *Gymnasium* or High-School course, the German boy may enter the University. As there are no required lecture and laboratory courses, he is left to choose from the multitude which are offered, either those which appeal to his tastes, or those which pertain to the profession later to be followed. The majority of the professors do not wish to be brought into personal relationship with the students attending their lectures and, consequently, it is the custom for the professor to enter, deliver the lecture, and, without permitting questions to be asked, to withdraw, the student body remaining seated. In conjunction with a few courses *Seminars* or quizzes are offered and it is only here that any personal acquaintance is made. Another peculiar feature is that the students

are allowed to attend the lectures for one month in order to decide whether it is wise to take the course. Many Germans sign and pay for courses which they attend only at the beginning and end (as it is necessary to have the Professor's signature at both times) in order to win the favor of the professors, or else to impress the authorities with the extent of the work done. That this is an astute bit of diplomacy is clear, when it is remembered that no examinations are required in these subjects for the attainment of the doctor's degree.

These facts show conclusively the minor part played by the lecture courses in the intellectual development of the American student of natural science abroad. How, then, is it possible to extend the scientific horizon, to quicken the powers of scientific imagination, to sharpen the power of discerning new problems for solution, to awaken and cultivate an overpowering love and lasting inspiration for original research? This development can only be achieved through the frequent personal intercourse with a scholar of magnetic personality, keen perception, fertility of ideas, ready sympathy, and breadth of scientific knowledge.

How is this personal instruction to be obtained? In all departments of natural science a research or *Arbeit*, generally experimental, must be presented and accepted before the candidate is allowed *zu promovieren* or "to come up" for the examination. Such a research usually requires two years and is carried out under the personal supervision of a professor or a *Privat-Docent*. The inspiration and enthusiasm of the professor are transmitted to the student in the daily or frequent intercourse (in connection with the *Arbeit*), through the discussions of the difficulties to be overcome, the suggestions as to methods and instruments, and through the perception of new problems for investigation from the results of the measurements. A research under an instructor deficient in suggestiveness and completeness of knowledge would be of no greater value in the mental growth of the student than the same research carried on in the quiet of one's private laboratory. It is, therefore, almost needless to emphasize the wisdom of learning from well-informed friends and colleagues the characteristics of the professors in the German universities. It is well for the student to reflect that it is not always inadvisable to

work under an Assistant-Professor or even occasionally a *Privat-Dozent*. They are young men striving most earnestly for advancement in their chosen professions, and, consequently, desire conscientious and apt students to carry out successfully their ideas.

The period of graduate study should not be one of *scientific* development alone, rather a period of evolution, a broadening, unfolding, and enrichment of the nature, the acquisition of those elements of culture which may develop more or less strongly the qualities of soundness, balance, ripeness. It is in virtue of the multitude and richness of opportunities that Germany possesses an irresistible charm for the graduate student. There is the language to be conquered, so full of the best in prose and verse; the wealth of art, painting, sculpture, music; the association with fellow-students from other countries, such as Russia, Sweden, Roumania, Bulgaria, Turkey, etc. — whose customs, religious and political life are so different from our own.

Acknowledging the importance of this phase of graduate life, it becomes possible to answer judiciously the second question — *where to study*. If possible, select a university situated in a city where the opportunities for culture in art and music are excellent. Some persons will offer the objection that the possibility for extended social intercourse with the Germans and the enjoyment of typical German life is far less in a city than in a small university town. This is certainly a debatable question, but, if true, does not offset to even a slight degree the advantages already enumerated. In addition, an observant student in a city will absorb much useful information regarding municipal affairs, sewage and water systems, police and fire protection, also German methods of business. The claim is also made that the craving for art and music may be partially satisfied by spending the holidays in the large cities. It should not be forgotten that the musical season, chamber, concert, and opera, ends in the spring, and that the same is true of the modern art exhibits. Truly the spring vocation *might* be spent in the city, but it seems much wiser to advocate for the American student the enjoyment of the rare privilege of travel. Since the cost of long journeys, using a *Rundreise* or circular ticket, third class, and patronizing clean but inexpensive hotels and restaurants, is exceedingly small from the American standpoint,

every student should be advised to borrow the money, if necessary, rather than miss such splendid broadening opportunities.

Is the cost of living greater in the city than in the university town? Though the answer is of vital importance to most American students, no statistics can be offered. My experience has been that there is very little difference between the cost of living and the university expenses in Berlin, Leipzig, München, Göttingen, and Heidelberg. Any extra cost comes through the acquisition of increased advantages, but the amount is not large. Students are always given reduced rates; in Leipzig, for instance, the best student seat at the opera costs twenty cents, a *Listz Verein* concert at which the best European soloists may be heard, thirty cents, a *Gewandhaus* rehearsal, twenty-five cents.

It seems, then, on the whole, wisest to select, if the major subject (*Fach*) permits, a university situated in a city, selecting that city in which the most inspiring and helpful teacher may be found. For the student not wishing to take the doctor's degree, or who is already a doctor of philosophy, it is unquestionably better not to spend more than two semesters at one university, wandering from one to another for the sake of acquaintance with scientific men and their methods. Indeed, a summer semester in one of the smaller universities, as Göttingen, Tena, Heidelberg, Bonn, Giessen, is to be highly recommended.

Another feature of German education of great value to the foreign student (*Ausländer*), yet frequently overlooked or neglected, is the meetings or *Versammlungen* of scientists for the presentation and discussion of scientific problems. These meetings are open to Americans and offer not alone intellectual food, but the rare privilege of seeing, hearing, and often meeting the foremost men of science.

A few words regarding the requirements for the degree "Doctor of Philosophy" may be of interest. In most of the German Universities the American college graduate is obliged to be officially connected with the university four semesters (two years) before the sanction *zu promovieren* is given; in Berlin University three years or six semesters is the stipulated time. With the exception of the latter university, these regulations are not strictly enforced, as is clearly shown by the records of degrees made in one,

more frequently, one and a half years. The actual requirements for the degree are the successful completion of an original experimental or theoretical *Arbeit* in the major subject, presented in German, and the passing of an oral examination of forty-five minutes in each of three subjects, the *Fach*, or major, and the two *Nebenfächer*, or minors. The minors are chosen by the candidates, and in most universities may be anything in the range of human knowledge. For example, a chemist may choose as minors any two of the following subjects: geology, mineralogy, mathematics, physics, history, language, elements of psychology, geography, elements of philosophy, political economy, etc. The natural inclination of man to attain honors and results with the least expenditure of energy and without incurring risk of failure, is here strikingly exemplified. Students are certainly justified in selecting the two easiest minors or those in which the examination is least searching, as long as the university authorities sanction such proceedings. As a consequence the German doctor's degree may signify either the completion of truly graduate work, or, and unfortunately more often, of work of an undergraduate order, in the minor subjects at least. This elasticity in the requirements is one cause for the severe and just criticism of the German doctor's degree, as compared with the corresponding degrees from certain English and American universities.

Pardon me if I refer in closing to one thing that seems patent enough, but which is not always clearly appreciated. Abroad the humblest citizen of the United States becomes magnified into the representative of the people, and the foreigners form their impressions of Americans from the actions, words, and deeds of these representatives. It is, alas, true that a large class of travelling Americans have deported and do deport themselves in a manner most offensive to the foreigner and the true American. It remains for the student, the earnest seeker after knowledge and wider experience, to lessen and, if possible, remove any unpleasant impressions of American character. The American student must, for his own and his country's sake, be a gentleman at all times; he must never forget that he is the guest of the German people, receiving their protection and hospitalities. It is not courteous, not a mark of true gentility, to lay marked emphasis on American

usages. On the contrary, it should be the aim of every American to conform, as far as possible, with the German customs, to observe the rules of etiquette which govern the social life, to use wisdom and discretion in offering criticism of German habits, religion, form of government, to use tact in upholding American institutions. Courtesy, tact, thoughtfulness, combined with letters of introduction to a few cultured persons, will always be an open sesame to the heart and homes of the best German people.

GEORGE V. WENDELL.

Senior Class Meeting.

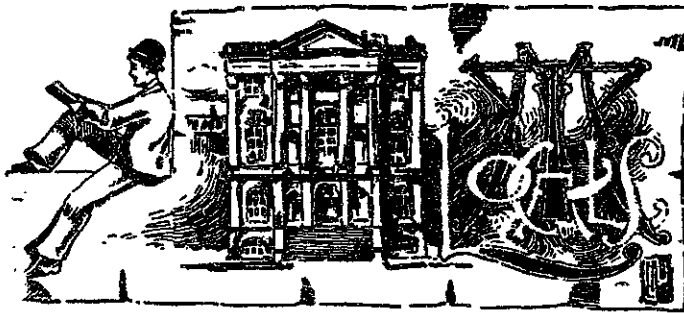
The Class of 1901 held a meeting in Huntington Hall on Monday at one o'clock. It was decided to hold the coming election of officers through the mail and secretary's office. President Holmes spoke of forming a Republican Club at Technology, and advised that the seniors take the lead. A committee was appointed to confer with the other classes in regard to establishing the custom of the student's rising in class room or lecture hall on the entrance of the President. The nominations for officers, signed by ten men, are to be handed in to the secretary, Mr. Cuppy, before Oct. 25.

1902.

The results of the Junior Class election of officers are as follows:—President, L. S. Cates; 1st Vice-Pres., K. T. Stow; 2nd Vice-Pres., Paul Hansen; Secretary, C. W. Kellogg, Jr.; Treasurer, C. R. Place; Directors, C. H. Boardman, Jr., and F. Gannett; for Institute Committee, I. R. Adams and J. C. Fruit.

Sophomore Elections.

The annual elections in the class of 1903 have resulted as follows: President, R. M. Field; 1st Vice-President, L. H. Lee; 2nd Vice-President, H. T. Winchester; Secretary, J. T. Cheney; Treasurer, B. H. Miller; Directors, F. G. Babcock and G. M. Harris; Institute Committee Members, C. J. McIntosh and Paul P. Parker. The election, like that of the other classes, was held through the mail.



About sixty ushers are needed for the inauguration exercises on October 24th. All men, having frock coats, who wish to serve, should hand in their names to Mr. Whipple, 1901, as soon as possible. Names may be left at the "Cage."

All Institute men from Chicago and vicinity are cordially invited to join the Chicago Club. The initiation fee and dues are one dollar. The club gives occasional dinners which all Chicago men enjoy. Hand your names to W. M. Drury, '03, Secretary.

Candidates for pianist, cello and flute, are desired for the Y. M. C. A. Orchestra. Address, E. L. Upham, Leader, Student House, 566 Massachusetts Ave., Boston. Candidates for the double quartet are also desired. Address, Hayes Rogers, Manager, Student House, 566 Massachusetts Ave., Boston.

The first annual meeting of the Andover Club was held on Friday, October 12. The following officers for the coming year were elected: President, E. F. Lawrence, '01; Vice-President, A. W. Allyn, '02; Secretary, and Treasurer, P. E. Chalifoux. It was decided to have a dinner, the date of which will be announced later.

THE TECH is to be found for sale on every Thursday at 1 P. M. at the following places: Rogers Corridor, Walker Building Corridor, the Tech. Lunch Room, A. D. Maclachlan's, 214 Clarendon St., and The Coöperative Supply Room in the Pierce Building. THE TECH is also on sale on Friday mornings in Rogers Corridor between half past eight and

nine o'clock. At other times it is to be had at THE TECH office, Maclachlan's and the Coöperative Supply Room in the Pierce Building.

The Mining Engineering Society opens its fourth year on Thursday, November 1. On this date President Pritchett will talk to the society upon matters of general interest. During the year there will be lectures and talks by different scientific men upon subjects in line with mining and metallurgy. All Course III. men in the Sophomore, Junior and Senior Classes are urged to join. Those wishing to do so may hand in their names and classes to the secretary at the cage, Paul E. Chalifoux.

Call for Democratic Club at M. I. T.

The undersigned men purpose in the issuing of this call, to form a Democratic Club among the undergraduate students at the Massachusetts Institute of Technology. All those who are interested in forming such a club are here given notice to meet in Room 26, Rogers Building, Friday, October 19th at 1 P. M. Come out and make the Democratic Club a success.

E. S. Foljambe, '01. I. R. Adams, '02.
P. G. L. Hilken, '01. L. E. Vaughn, '02.
Robt. White, Jr., '01. C. E. McCarthy, '02.
S. W. St. Clair, '01. E. B. MacNaughton, '02.

Calendar.

Friday, October 19th.—Meeting of *Technique 1902* Board, Trophy Room. Regular M. I. T. Y. M. C. A. Student Meeting. Orchestra. Room 11, Rogers Building, 4.10 P. M. Mechanics Arts High School graduates meet in Room 33, Rogers Building, 1 P. M. Chess Club Meeting, Room 11, Rogers Building, 1 P. M. First meeting of the Civil Engineering Society. Mr. Wasson, '01, will speak on Summer School of 1900. Room 11, Eng. B., 4.00 P. M.

Sunday, October 21st.—Regular Student Meeting at Tech. Y. M. C. A. Student House, 566 Massachusetts Ave., 4 P. M.

Monday, October 22nd.—Regular meeting TECH Board, Tech Office, 1 P. M.

Tuesday, October 23rd.—Regular meeting *Technique 1902* Board, Trophy Room, Rogers, 4 P. M.

Wednesday, October 24th.—Inauguration of President Pritchett at Symphony Hall, cor. Massachusetts and Huntington Avenues, 2 P. M.



In Crocker and Chubb Technology has two valuable end men.

Buy your tickets to the Stevens game in Rogers Corridor on Friday, to save trouble at the gate.

Mr. Howard Baetjer, who was captain of the John Hopkins Track Team last year, is now at the Institute.

Everybody be out for football practice today and tomorrow, to help get the team into perfect condition for Saturday's game.

Manager Hilken has appointed S. C. Sears, C. T. Bilyea, N. L. Danforth, R. W. Bailey, H. M. McMasters, P. H. Parrock and F. D. Chase, cheer leaders, and it is hoped that every Tech. man will turn out to support them at the Stevens Game next Saturday.

Nineteen men turned out for the Hare and Hounds run from Wellesley Hills last Saturday. The trail, which was laid by Hunter, '02, and Drew, '04, was a circuit of about seven miles, enclosing the village of Wellesley and crossing the links of the Wellesley Golf Club and the grounds of Wellesley College. Worcester, '04, set the pace for most of the run, with such good effect that the hares were sighted a third of a mile from home. The finish was the hottest ever run in the club, Worcester coming in at a fast pace only ten seconds behind the hares. Haynes, '04, ran a plucky race and was second hound in.

The Club will hold its Annual Handicap and Championship Run (open to all Institute men), on Saturday, April 13, 1901. The preliminary run will be April 6.

Brown, 22 — M. I. T., o.

Tech. played her second game of the season on Oct. 10, with Brown, and suffered defeat by a score of 22—0 in twenty-five and fifteen minute halves. Brown scored three times in the first and once in the second half. The game was played in the rain and on a slippery field, which gave the heavier team the advantage. However the whole game was far more satisfactory than that of last year when Brown won 38—0.

Brown kicked off and Tech. took the ball back ten yards before being downed. On the third down Tech. kicked, Barry catching the ball and recovering 20 yards. By steady line plunging Brown worked to Tech's goal line where Keene took the ball across. Bartlett kicked a doubtful goal. Maxson kicked to Bates who recovered 30 yards. Again by steady work Brown sent Barry over for the second touchdown. No goal was kicked. Bates got the ball on kickoff and brought it back 15 yards. Bates then punted and Maxson returned it to Brown's 10-yard line. Bates punted again but Maxson was downed without gain. Tech. braced up and Wilson made 3 and 5 yards through centre and then Brown got the ball on downs and rushed it down the field for the third score. Honors were even for the rest of the half. In the second half Brown scored but once and when the half ended the ball was on Tech's 30-yard line.

BROWN.

Cann, Smith, l. e.
Keene, Baker, l. t.
Stearns, l. g.
Hall, Tetrault, c.
Melendy, r. g.
Whittemore, r. t.
Bartlett, Crowell, r. e.
Scudder, Barry, q. b.
Barry, Ball, h. b.
Washburn, Wheeler, h. b.
Bates, Kimball, f. b.

TECH.

Chubb, Capelle, Wood, r. e.
Dillon, Moore, r. t.
G. D. Wilson, r. g.
Hunter, Laws, c.
Laws, Hamilton, l. g.
Heckman, l. t.
Crocker, l. e.
Maxson, q. b.
Wood, Dillon, h. b.
Wilson, h. b.
Metcalf, f. b.

M. I. T., 6—New Hampshire, o.

Last Saturday's game between New Hampshire State College and Technology resembled more closely a heated debate than a football match. When the teams did play, both played well and pluckily.

Tech started in with a rush, carrying the ball up the field by line plays, but soon became careless, owing probably to the many intermissions required by the opponents to question the decisions of the officials, and was held for downs. New Hampshire in her turn carried the ball to Technology's 40-yard line. Here her tendency to fumble gave Tech the game, for Barry picked up the ball and ran 70 yards for the only touchdown of the day. He also kicked the goal. For Tech, Metcalfe did some splendid line bucking and punted well, Dillon and Wilson also doing good work in their positions. In the second half Maxson outpunted Pearson, gaining valuable ground.

New Hampshire made her gains through Technology's tackles or on end plays, her interference being much better than Tech's.

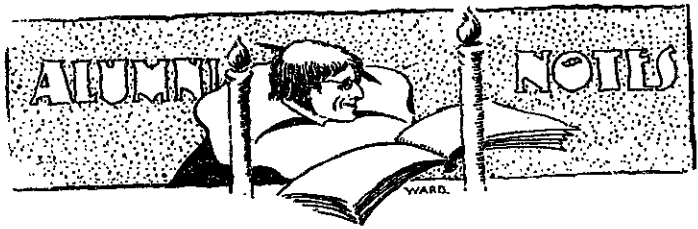
The line-up was:—

TECH	N. H.
Crocker, l. e.	Cilley, r. e.
Moore, l. t.	Dearborn, r. t.
Wilson, l. g.	Bickford, r. g.
Laws, c.	Davis, c.
Hamilton, r. g.	Covell, l. g.
Roberts, r. t.	Morell, l. t.
Wood, r. e.	Watson, l. e.
McCarthy, Maxson, q. b.	Lewis, q. b.
Dillon, r. h.	Taylor, Towle, r. h.
Barry, l. h.	Rumlett, Goodrich, l. h.
Metcalfe, f.	Pearson, — f.

Score:—Technology, 6, New Hampshire, o. Touchdown, Barry. Goal, Barry. Umpire, Nolte. Referee, Freeman. Time-keeper, Chase.

Correction.

Mr. R. H. Soule, '72, not '92, is Consulting and Designing Engineer, 71 Broadway, New York.



'74. Edward S. Shaw, Consulting Bridge Engineer, of Boston, has submitted a competitive design, accompanied by a bid from the newly formed bridge trust, the American Bridge Company, for the proposed bridge at Sydney, New South Wales.

'90. Dr. Fred'k. S. Hollis, has resigned as biologist of the Metropolitan Water Board, to accept a position in the medical department of Yale University.

'92. Frank E. Perkins, IV., *Architecte Diplômé par le Gouvernement Français*, is now Professor of Senior Design at the University of Pennsylvania.

'93. Dr. Augustus P. Wadsworth, VII., is Assistant in Bacteriology and Alumni Fellow in Pathology at the College of Physicians and Surgeons, New York, as well as physician at St. Luke's Hospital.

'93. S. Edgar Whitaker, VI., is now superintendent and general manager of the Portland and Yarmouth Electric Railway Co., Portland, Me.

'94. Horatio N. Parker has been appointed biologist for the Metropolitan Water Board.

'95. Benjamin C. Donham, Course I., is employed in the Electric Railroad and Water Supply Contracts in Korea.

'97. Thomas C. Atwood, Course I., has left the Metropolitan Water Board to accept a position with the Corps of Engineers, United States Army.

'98. Ernest Schroeder, IV., died at St. Joseph's Hospital, Omaha, Neb., on Oct. 4. He was with John Latenser, Architect.

'00. Stanley G. H. Fitch, X., formerly editor-in-chief of THE TECH, is Chemist for the Elberton Oil Mills, Elberton, Ga.



THE LOUNGER feels compelled to announce that he is still here. Last Thursday, after he had recovered from an application of mechanics that had made his cerebral tissues writhe in agony, THE LOUNGER wended his weary way to Rogers and picked up a TECH. Then he wished he had n't. For there on the first page stood staring the announcement that henceforth his inane outbursts of prolific verbosity would be slashed by a new blue pencil. THE LOUNGER saw the whole of the hideous plot; it was simply a scheme to work him harder. THE LOUNGER knew that the only pressure that was caused by *Technique* was exerted at the end of the year for the purpose of squeezing a dollar out of every innocent sucker that would bite at the temptingly hidden bait, and, speaking of that, THE LOUNGER would like to suggest right now that when a man has subscribed to a book for years, like Corporal B—l—y and THE LOUNGER, simply in order to learn from the Calendar when his own spasmodic attacks of wit took place, it is about time that one was dedicated to him. It is not that THE LOUNGER would consider it an honor, not at all, he would as soon think of considering the cut above an honor, but he thinks that some public recognition is due him for the material which has been annually annexed from his weekly columns.

THE LOUNGER greatly deplotes the lack of strenuosity in the campaign in this benighted section of the country. Whenever THE LOUNGER happens to feel vivacious enough to read a newspaper he always observes that Teddy has been hit with a brickbat out West. That reminds THE LOUNGER of old times. He remembers how in those days of '96, he, like another gentleman in the Institute, enjoyed a good "scrap." He recollects that in those days they had such things as torch-light processions and Harvard students, and that by a combination of the two a good many Tech. men were enabled to enjoy themselves thoroughly. THE LOUNGER can also dimly call to mind certain moral essays on "Modern Prison Life," which were written during that campaign by several students of both colleges who were making scientific demonstrations among the lower classes at the time. THE LOUNGER would mention incidentally

that the demonstrations took the form of a free fight. THE LOUNGER saw something of the kind last year when Dewey absconded from the city with a watch, but from present indications he will never see it again. THE LOUNGER is afraid the modern college man is developing into a — well, into something like the precocious child who sat next THE LOUNGER in Huntington Hall last Thursday and explained to him the points of the remarks which occurred in THE LOUNGER's delirium for that week.

THE LOUNGER was an accidental witness of a most touching scene which took place on the sidewalk in front of Walker some few days past. An innocent looking member of the incoming delegation known as 1904, with a pink in his buttonhole, a Bryan badge on the opposite lapel, wearing a golf suit, ending in patent leather shoes, bore down the street under full sail. The sail consisted of a bundle of tabular views and drill excuses. Espying our jovial friend of the blooming headlight, Mr. Spinwheel, on the lookout for second-hand clothes, he stepped up to him apologetically and said, "Pardon me, sir, but I believe you are my guardian. Won't you help me with my tabular view?" On being suddenly seized and pinned to a tree while his wearing apparel was closely inspected, he peered down into his captor's face and innocently inquired, "Why, are n't you the Professor in charge of Course I.?"

THE LOUNGER has been much interested of late in the frequent discussions on subjects for Theses. Some of the researches suggested are so far-reaching in their scope and require so vast an amount of earnest, conscientious investigation into the conglomerate mass of hitherto undiscovered principles as to discourage any ordinary mortal from their pursuance. Perhaps the most prominent example is the subject requiring six years of earnest deliberation embraced by the title, "An Elementary Treatise upon the Investigation and Simplification of an Empyrical Formula for the Determination of the Appropriate Amount of Concentrated Hot Air Requisite to the Rejuvenation of Gas Machines," by Corporal B—l—y.

The "call" for a Democratic Club, which has been issued, and is to be found in another column of this week's TECH, has aroused THE LOUNGER from his dreaming to contemplate the "drop" the Democrats have gotten on the Republicans. For the sake of the Republicans, certainly the formality of appointing Democrats on a Republican committee, as was done at the Senior class meeting, may be dispensed with. Altogether THE LOUNGER feels quite appalled at the interest in the national scrap at the Institute, and has decided to suspend speculation on the result on that account until after the seventh of November.



Discount to Tech. Students.

MEMBER OF THE CO-OPERATIVE SOCIETY.

Established 1828

CHAUNCY-HALL SCHOOL

HAS LONG MADE A

SPECIALTY OF PREPARATION FOR
TECHNOLOGY.

REFERENCE is made to the President and Secretary of the Institute in regard to the thoroughness with which Chauncy-Hall pupils are fitted, not only for entering the Institute, but also for pursuing successfully their subsequent work. Preparation also for business and for college.

Regular Grammar and High-School

Courses, fitting for Business
and for College.

458 Boylston Street, - - - Boston, Mass.

(OPPOSITE THE INSTITUTE.)

TAYLOR, HAGAR & KURT,
PRINCIPALS.

Hall & Hancock,

Novelties in - - - -

SOFT
HATS AND
STIFF
HATS

Canes, Umbrellas,

Hat Cases and Gloves.

407 Washington Street.

Discount to Tech. Students.

YEAR ROUND NOVELTIES

NOT ONLY IN

Young Men's Elegant Made-up Clothing

But in all articles appertaining to a Complete
Outfit, viz.:

Hats, Footwear, Underwear, Linen, Neckwear,
Hosiery, Canes, Umbrellas, Travelling
Bags, Mackintoshes and Gloves.

LEADING MANUFACTURERS AND
OUTFITTERS IN NEW ENGLAND.

A. SHUMAN & CO.,

SHUMAN CORNER,
BOSTON.

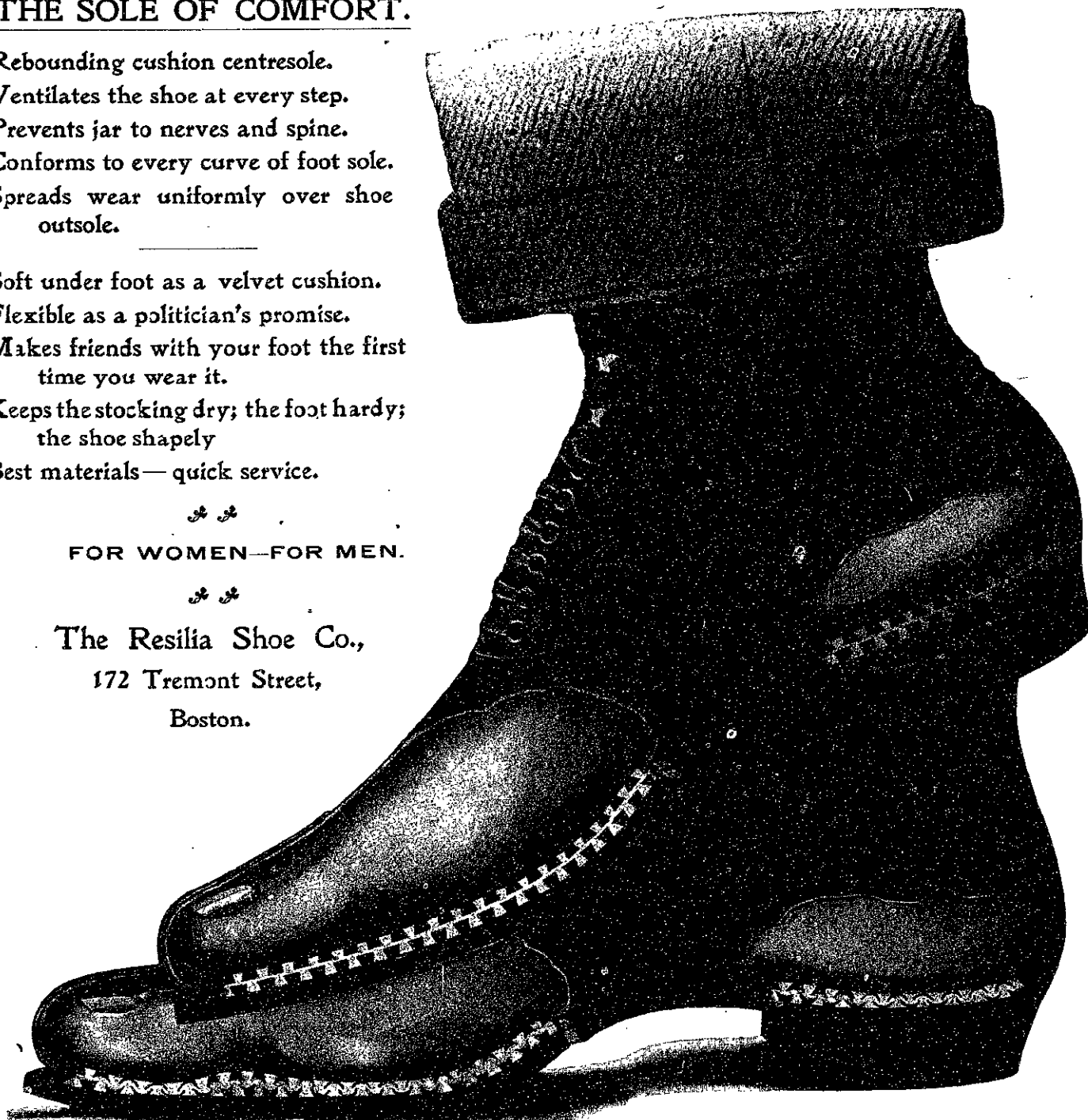
THE SOLE OF COMFORT.

Rebounding cushion centresole.
Ventilates the shoe at every step.
Prevents jar to nerves and spine.
Conforms to every curve of foot sole.
Spreads wear uniformly over shoe
outsole.

Soft under foot as a velvet cushion.
Flexible as a politician's promise.
Makes friends with your foot the first
time you wear it.
Keeps the stocking dry; the foot hardy;
the shoe shapely
Best materials—quick service.

✿ ✿
FOR WOMEN—FOR MEN.

✿ ✿
The Resilia Shoe Co.,
172 Tremont Street,
Boston.





Week Commencing October 15, 1900.

Hollis Street Theatre.— Daniel Frohman's New York Stock Co. begins the first of a three weeks' engagement, producing a different play each week. This week "The Ambassador," so successful last season, will be played. Mr. John Mason heads an especially good company.

Boston Theatre.— This is the last week here of James O'Neil in "The Count of Monte Christo." The engagement has been most successful. No one should miss seeing this mammoth production.

Columbia Theatre.— "The Cadet Girl," headed by Dan Daly, promises to beat the record made by "The Rounders" last season. The opera is full of catchy music and amusing incidents.

Boston Museum.— "The Sign of the Cross" holds forth for this week only. The cast is practically the same as when the same play was produced last winter so successfully. It is conspicuous for the correctness of its scenery and costumes.

S. C. KEITH, JR., '93,

BACTERIOLOGIST
AND CHEMIST,

394 RUTHERFORD AVE., CHARLESTOWN, MASS.

Kieth's Theatre.— A short play, "Trenton," is to be one of the drawing cards this week, and it is said to be exceedingly good. The rest of the programme is equally attractive.

Tremont Theatre.— Mrs. Fiske makes her first appearance here this fall in "Becky Sharp," which she played last winter, and in which she is considered to be at her best. Her acting of Thackeray's creation is certainly remarkable.

Castle Square Theatre.— This week's attraction will be "The Marble Heart," infrequently played for the last half century with great popularity. The character of Mlle. Marco will be carried by Miss Lawrence.

Park Theatre.— Mr. Henry Jewett begins his third week of the dramatization of Mr. J. Lane Allen's book, "The Choir Invisible." Mr. Jewett's conception of the schoolmaster is most accurate and impressive.

Boston Music Hall.— Mr. Harry Lacy, so well known in Boston, is billed for this week in a comedy written by himself and entitled "Bob Rackett's Pajamas." Another pleasing announcement is a return engagement of Clifford and Huth. Numerous other features make up an attractive list.

20th Century Exposition.— The musical part of this popular attraction will be under the direction of Victor Herbert this week. Mr. Herbert is at the head of the Pittsburgh Orchestra, so well known in musical circles. The very large attendance during the past week demonstrates the excellence of the Exposition.

HERRICK TICKETS Copley
ALL THEATRES Square.

Telephone 608 and 950 Back Bay.

"THE GIRLS ARE FOND OF THESE"



TECH. EMBLEMS.

Greatest Variety.
Lowest Prices.

BENT & BUSH,

387 WASHINGTON ST., BOSTON.

Geo. H. Greenwood,

9 and 11 BOYLSTON STREET.



FINE BRIAR AND MERCHAUM PIPES ❁❁

SMOKERS' ARTICLES ❁❁❁❁❁❁

AGENT FOR BBB BRIAR PIPES ❁❁❁

CO-OPERATIVE DISCOUNT.

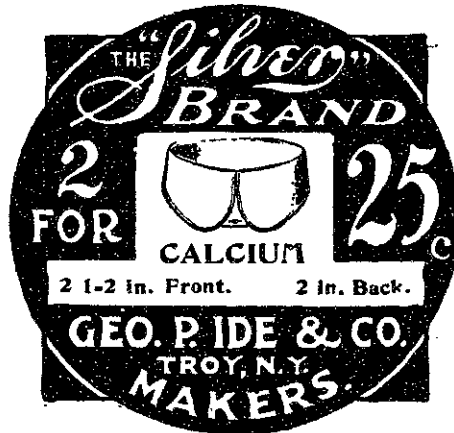


A. S. ADAMS
 Maker of the Official
M. I. T. Pin
 8 Winter St., BOSTON.



THOMAS HOOPER,
 Maker of
CUSTOM SHIRTS,

352 Washington Street, BOSTON.
 Telephone 2902 Boston.



Landers'

Always Open
Quick Service
Polite Attention

**Famous Coffee House
 and Lunch Room.....**

For Ladies and
 Gentlemen.

Lunches Put Up
 To Take Out.

Our Coffee is Unequalled in the City.



189 Columbus Ave., cor. Berkeley.
 695 Washington Street.

I. N. LANDERS, Proprietor

H. E. SANDERS, Manager

LONDON BOOT SHOPS.

Our business is devoted chiefly to



YOUNG MEN'S SHOES.

Our Shoes are made on the newest English models, staunch and up-to-date.
 10 per cent discount to "Tech" Students.

COES & STODDER,

78 Boylston Street, and 14 School Street, Boston.

Gentlemen's Hair Cutting
 and Shaving

. . . **Parlor**

HOTEL OXFORD,

Huntington Avenue. Exeter Street.

GRIFFITH & STORER.

SPECIAL ATTENTION
 GIVEN TO STUDENTS.

RAZORS HONED
 AND CONCAVED

Flowers. _____ Candies.

Artistic Floral Arrangements
 to suit the most fastidious.....

**THORNDIKE FLOWER
 STORE.**

230 Boylston St. Telephone 101 B.B.
 SPECIAL DISCOUNT TO STUDENTS.

NECKWEAR
GLOVES
HOSIERY
UNDERWEAR

Shirts

LAUNDRY WORK *a Specialty*

Arrange with us to do your work
while you are in Boston. It will
pay you.

Keep Manfg. Co.,

Makers of Keep's Shirts,

156 Tremont St., near West St.,

BOSTON.

Royal

Dairy Lunch,

11 & 12 Park Square,
BOSTON.

A. C. STONE, Proprietor,

C. H. MANSFIELD, Manager.



OPEN ALL NIGHT.

LUNCHES put up to take out.

WRIGHT & DITSON,
FINE ATHLETIC GOODS.

Every Requisite for Football, Hockey, Skating,
Basket Ball, Photography, Gymnasium.

TETHER BALL, a new game invented by Mr. Lehmann, of
Oxford College, England.

CATALOGUES, SAMPLES, ETC., SENT
POSTPAID TO ANY ADDRESS

Mail Orders Given Prompt and Careful Attention.

WRIGHT & DITSON,

344 Washington Street,

...Boston, Mass.

ALL GOODS REQUIRED BY
STUDENTS AT

MacLachlan's,

214 Clarendon Street.

Drawing Instruments and Materials, etc.

Fountain Pens, Text Books.

J. BOWEN,
Custom Tailor.

Clothes cut and made to order in the Latest
Style. Also Pressing, Cleaning and Altering
at a very low price.

39 St. James Avenue,
under Hotel Ludlow, cor. Clarendon Street.

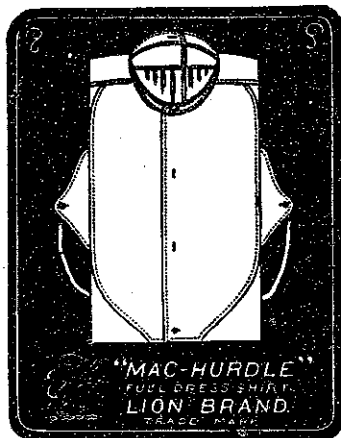
PLEASE GIVE ME A CALL.

Students, Attention!

At TRINITY COURT PETIT LUNCH, one minute's walk from Technology buildings, you can get the best and at the most reasonable prices in Boston.

Service and cuisine unexcelled.

TRY US.



Patented Perfect Fitting

MAC-HURDLE FULL DRESS SHIRT

Never bulges no matter under what condition of body posture it is worn.

FOR SALE BY ALL DEALERS.

Manufactured by

United Shirt & Collar Co.,
TROY, N. Y.

WM. P. CHURCH, Manager.

Special Announcement.

St. Botolph Hall Cafe.

38 ST. BOTOLPH STREET.

Regular Weekly Board (3 meals a day)	\$5.00
21 Breakfasts — Ticket	5.00
21 Luncheons " " " "	4.00
21 Dinners " " " "	7.00

COMBINATIONS:

7 Breakfasts, 7 Luncheons, 7 Dinners —	
" " " " " " Ticket,	\$5.50
11 " " " " " " " "	6.00

Patronage of Technology Students
respectfully solicited.

M. DWYER.

THE BRUNSWICK,

BOSTON.

Boylston and Clarendon Streets,

(Adjoining Copley Square.)

Near the Museum of Fine Arts, New
Public Library, New Old South
Church, and opposite Trinity
(Philips Brooks') Church
and Institute of
Technology.

KEPT ON BOTH AMERICAN
AND EUROPEAN PLANS.

BARNES & DUNKLEE, Proprietors.

H. H. BARNES, Manager.



In writing advertisers kindly mention THE TECH.

THE
Massachusetts Institute of Technology
BOSTON.

HENRY S. PRITCHETT, LL.D., *President.*

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY offers courses, each of four years' duration, leading to the degree of Bachelor of Science, in Civil, Mechanical, Mining, Electrical, Chemical, and Sanitary Engineering, in Architecture, Chemistry, Physics, Biology, Geology and Naval Architecture. A less technical course, in General Studies, is offered to students wishing to qualify themselves for business pursuits.

To be admitted to the first-year class, applicants must have attained the age of seventeen, and must pass satisfactory examinations in Algebra, Plane and Solid Geometry, English, History and French (or German), they must also show preparation in one of a series of elective subjects.

A division of these entrance subjects between two successive years is, with certain restrictions, permitted.

Entrance examinations are held at the Institute in June and September of each year. In June, applicants are examined in New York, Philadelphia, Chicago, and other principal cities. A circular stating times and places is issued in advance, and will be mailed on application.

Graduates of colleges and scientific schools are admitted, without examination, to such advanced standing as is warranted by their collegiate training.

PUBLICATIONS.

The *Annual Catalogue*, the *Report of the President and the Treasurer* (issued in December), and any of the following descriptive circulars, will be mailed free on application.

Massachusetts Institute of Technology: an illustrated pamphlet describing the laboratories of the Institute.

Of the Departments of *Civil Engineering*; *Mechanical Engineering*; *Mining Engineering*; *Physics and Electrical Engineering*; *Architecture*; *Chemistry*; *Biology*; *General Studies*; *Naval Architecture*.

In regard to *Admission of Graduates of other Colleges*; *Opportunities for Teachers*; *The Lowell School of Design*; *Summer Courses*.

H. W. TYLER, *Secretary,*

491 BOYLSTON STREET, BOSTON, MASS.

DISTINGUISHED GUESTS.

Hon. F. A. VANDERLIP,
Assistant Secretary of the Treasury.
DR. C. D. WALCOTT,
Director of United States Geological
Survey.
Prof. SIMON NEWCOMB,

MR. O. TITTMAN,
Acting Head of Coast and Geodetic
Survey.
Hon. W. T. HARRIS,
Commissioner of Education.
All of Washington.

REPRESENTING THE COMMONWEALTH OF MASSACHUSETTS :

HIS EXCELLENCY, THE GOVERNOR.
Hon. O. W. HOLMES,
Chief Justice of the Supreme Court.
Hon. G. E. SMITH,
President of the Senate.
Hon. J. J. MYERS,
Speaker of the House.

Hon. H. D. YERXA,
Of the Governor's Council.
Hon. H. C. WADLIN,
Commissioner of Labor Statistics.
Hon. C. B. TILLINGHAST,
W. T. ALDRICH,
FRANK A. HILL,
Of the State Board of Education.
Hon. H. H. SPRAGUE,

PRESIDENTS OF COLLEGES AND UNIVERSITIES :

C. W. ELIOT, of Harvard.
Chancellor W. S. CHAPIN, of Washington
University.
T. M. DROWN, of Lehigh.
W. F. WARREN, of Boston University.
W. J. TUCKER, of Dartmouth.
J. T. LEHY, of Holy Cross College.
W. CLARKE SEELYE, of Smith.

G. W. SMITH, of Trinity.
H. H. GOODALL, of Amherst Agricultural
College.
J. H. WASHBURN, of Rhode Island Agri-
cultural College.
Pres. E. BRAINERD, of Middlebury.
F. C. MENDENHALL, of Worcester.
W. G. R. MULLEN, of Boston College.

DELEGATES FROM COLLEGES AND UNIVERSITIES :

Prof. R. H. CHITTENDEN, Yale.
Profs. R. H. THURSTON and E. A. FUERTES,
Cornell.
Profs. BARUS and BURNHAM, Brown.
Prof. HUTTON, Columbia
Prof. PATTERSON, University of Michigan.
Profs. BROOKS, GROSVENOR and TODD,
Amherst.
Profs. RICE and LA FAVEUR, Williams.

Profs. LINDSAY and PERRIN, B. U.
Profs. EASTMAN and EMERY, Dartmouth.
Profs. DOLBEAR and FAY, Tufts.
Profs. CHARLES ELIOT NORTON, N. S.
SHALER, W. M. DAVIS, PICKERING,
AMES, GRAY, THAYER, C. L. SMITH,
FARLOW, GOODALE, E. H. HALL,
TROWBRIDGE, WRIGHT, DR. RICHARD-
SON, and others, from Harvard.

PROMINENT EDUCATORS :

Hon. W. T. HARRIS, United States Com-
missioner of Education.
Mr. G. I. ALDRICH, of the State Board and
Superintendent of Schools in Brook-
line.
Dr. C. F. P. BANCROFT, Philips Academy,
Andover.
Dr. C. W. PARMENTER, Mechanic's Arts
High School.
Dr. J. H. COIT, St. Paul's School, Concord.
MR. T. M. BALLIET, Superintendent of
Springfield Schools.

DR. D. W. ABERCROMBIE, Worcester
Academy.
MR. J. B. TAYLOR, Chauncy Hall.
ROBERT E. BABSON, English High School.
DR. W. A. COLLAR, Roxbury Latin School.
REV. J. N. SAWYER, Williston Academy.
DR. JOHN TETLOW, Boston G. H. S.
RAY GREENE HULING, Secretary New Eng-
land Association of Colleges and
Preparatory Schools.
MR. W. F. BRADBURY, Cambridge High
School, and others.



AMONG the representative business men attending were: Pres. J. R. CARTER of the Associated Boards of Trade of Massachusetts; Hon. J. P. STEARNS, President of the National Shawmut Bank; Mr. HENRY HIGGINSON, Col. ALBERT CLARKE, Hon. WILLIAM ENDICOTT, President of the New England Trust Company; Hon. EBEN S. DRAPER of Hopedale; OSBORNE HOWES; Pres. THOMAS SHERWIN of the Bell Telephone Company; Hon. M. P. KENNARD, former sub-Treasurer of the United States at Boston; Hon. J. R. LEESON; CHARLES P. BOWDITCH, Esq.; Hon. CHARLES L. LOVERING; Hon. JOSEPH WHITE; Mr. A. C. WALWORTH; J. T. HAGUE, Esq.; S. D. WARREN, Esq.; Mr. S. N. D. NORTH; Mr. FRANKLIN HAVEN, and others.

Prominent among the well-known people present were: Rev. EDWARD E. HALE; Hon. ROBERT TREAT PAINE; EDWIN D. MEAD; Col. E. W. HIGGINSON; Prof. ELIHU THOMSON; Hon. ROBERT S. RANTOUL; Hon. MOORFIELD STOREY; Gen. A. P. ROCKWELL; Rev. E. WINCHESTER DONALD; ALEXANDER RICE MCKIM; D. McU. STAUFFER of the Engineering Record, and representatives of leading scientific societies such as the Society of Arts and the Franklin Institute.

From the neighboring institutions in the Back Bay, as delegates, came: Col. BENTON; Hon. SOLOMON LINCOLN and Rev. JAMES DE NORMANDIE with Mr. J. L. WHITNEY for the Public Library; Gen. CHARLES LORING from the Museum of Fine Arts; Dr. C. S. MINOT, President of the Boston Society of Natural History, and Dr. RICHARDSON of the Harvard Medical School.

TWO NOTABLE BOOKS

An American Anthology

1787-1900. By EDMUND CLARENCE STEDMAN. 950 pages. Large crown 8vo, gilt top, \$3.00; cloth, full gilt, \$3.50; half calf, gilt top, \$5.00; tree calf or levant, \$6.50.

THIS book is uniform with Mr. Stedman's "Victorian Anthology" in shape, design, and editorial detail. American poets are represented by their most characteristic poems, and biographical sketches of them are given. A full introduction, including a survey of the course of American poetry to the end of the century, lends much additional interest to this specially valuable book.

A Century of American Diplomacy

Being a Brief Review of the Foreign Relations of the United States, 1776-1876. By JOHN W. FOSTER, former Secretary of State for the United States. 8vo, \$3.50.

MR. FOSTER is exceptionally qualified to write a diplomatic history of the United States. He has been longer in the American diplomatic service than any other man except John Quincy Adams. He has served as United States Minister in Mexico, Russia, and Spain; has been special Plenipotentiary to Great Britain, Germany, San Domingo, China, and Japan; and has been a member of the most important high commissions sitting in this country for many years. His book is one of great value, is enlivened by many personal sketches, and is written in a popular style.

SOLD BY ALL BOOKSELLERS . . . SENT, POSTPAID, BY
HOUGHTON, MIFFLIN & CO., BOSTON

OFFICERS OF THE DAY.

CHIEF MARSHAL : DR. FRANCIS H. WILLIAMS.

MARSHALS :

PROF. C. F. ALLEN	PROF. W. H. LAWRENCE	PROF. W. Z. RIPLEY
CAPT. WILLIAM BAIRD	MR. R. R. LAWRENCE	PROF. W. T. SEDGWICK
PROF. ARLO BATES	PROF. A. L. MERRILL	MR. H. H. SMITH
MR. EDWARD CUNNINGHAM	MR. E. C. MILLER	MR. W. B. THURBER
MR. H. W. GARDNER	PROF. E. F. MILLER	PROF. H. W. TYLER
MR. WALTER HUMPHREYS	PROF. D. PORTER	MR. AMBROSE WALKER
COL. F. L. LOCKE		

*The Order of Procession, entering the hall, two and two,
was as follows :*

DR. FRANCIS H. WILLIAMS,
CHIEF MARSHAL.

PRESIDENT-ELECT PRITCHETT,

EX-PRESIDENT J. M. CRAFTS,

BISHOP LAWRENCE,

PROFESSOR ARLO BATES,

MAYOR T. N. HART.

GEORGE WIGGLESWORTH, ESQ.,
Treasurer of the Corporation.

PRESIDENT C. W. ELIOT,
Harvard University.

PROFESSOR E. E. NORTON,
Harvard University.

PROFESSOR R. H. CHITTENDEN.
Delegate from Yale University and Director
Sheffield Scientific School.

HON. W. T. HARRIS,
U. S. Commissioner of Education.

PRESIDENT T. C. MENDENHALL,
Worcester Polytechnic Institute.

PRESIDENT W. S. CHAPIN,
Washington University, St. Louis.

PRESIDENT L. CLARKE SEELEY,
Smith College.

REV. LYMAN ABBOTT,
Editor of the Outlook.

PRESIDENT W. G. R. MULLEN,
Boston College.

COLONEL T. L. LIVERMORE,
Presiding Officer of the Corporation.

THE GOVERNOR OF THE COMMON-
WEALTH.

SENATOR HENRY CABOT LODGE.

PROFESSOR HORATIO PARKER,
Yale University.

PROFESSOR W. T. SEDGWICK.

MARSHALS.

EX-PRESIDENT J. D. RUNKLE.

HON. L. E. SMITH,
President, Senate of Massachusetts.

REV. DR. EDWARD EVERETT HALE.

PRESIDENT T. M. DROWN,
Lehigh University.

PROFESSOR SIMON NEWCOMB,
U. S. Naval Observatory.

PRESIDENT W. J. TUCKER,
Dartmouth College.

HON. F. A. VANDERLIP,
Assistant Secretary of the Treasury.

DR. C. D. WALCOTT,
Superintendent U. S. Geological Survey.

OLIVER WENDELL HOLMES,
Chief Justice.

PRESIDENT J. F. LEHY,
Holy Cross College.

PRESIDENT SMITH,
Trinity College.

The Tech

PUBLISHED EVERY THURSDAY
DURING THE COLLEGE YEAR BY
STUDENTS OF THE
Massachusetts Institute of Technology

HENRY HODGMAN SAYLOR 1902
Editor in Chief

JOHN CLYDE FRUIT 1902
Assistant Editor in Chief

WALTER HAVENS FARMER 1902
Secretary

H. S. MAXSON 1901

ROBERT WHITE Jr 1901

I. R. ADAMS 1902

C. A. SAWYER Jr 1902

K. W. ENDRES 1903

ALBERT EATON LOMBARD 1902
Business Manager

ARTHUR S. MORE 1902

HARRY A. STILES 1903

Assistant Business
Managers

CARL H. HEINTZEMANN PRINTER BOSTON

INAUGURAL EXERCISES.

OPENING ADDRESS



THE Inaugural Exercises installing Dr. Pritchett as President of the Institute were held in Symphony Hall on Wednesday, October twenty-fourth. On behalf of the Corporation Col. Thomas L. Livermore spoke as follows:

At the beginning of the present year, the Executive Committee of the Massachusetts Institute of Technology, learning with great regret the wish of President Crafts to relinquish his office, found themselves facing the grave duty of choosing a successor to the line of eminent men who had sat in the President's chair. The standard which they had set was a high one. Under their leadership the Institute had grown into a complex organization of nearly twelve hundred students and a hundred and seventy-seven instructors, from the modest corps of twenty-five students and five professors with which it began its life in 1865 under President Rogers, that prophet who had the imagination to conceive, the courage to project and the genius to create this novel institution of learning.

There was no lack of nominees for the office worthy of respectful consideration, but there was one whose qualifications were preëminent in the estimation of the committee. After long experience as an instructor in science, and of eminent repute at home and abroad for scientific attainments and work, he had, at the head of the Coast and Geodetic Survey to which he was called by the President of the United States, demonstrated his profound learning together with a genius for organization and the talent for wise control, which are the essentials in the successful administration of great colleges.

It is a good omen for the future of this Institute that its new president comes from the great valley of the Mississippi over which the star of Empire stands still. It brings to Massachusetts some measure of a not unworthy revenge for the allurements to the fertile prairies of the West of so many of our best young men. If it shall result from this event that more of the young men of the West seek admission to the Institute, then in taking a more generous revenge

by returning them to their homes trained in our methods and filled with our traditions, we shall do well by our country and not ill for ourselves.

And now it is my agreeable duty on behalf of the Corporation to formally announce the appointment to be President of the Massachusetts Institute of Technology of Henry Smith Pritchett, Doctor of Philosophy and Doctor of Laws, and to express the great satisfaction with which it has received his acceptance of the office.

He has our sincere welcome. We assure him of our best wishes for his success and we promise him our support in all that he shall do to hold here what is good, and improve what may be made better.



ADDRESS OF HON. HENRY CABOT LODGE.



AXTREMELY fortunate is that man to whom it is given to stand at the head of a great institution of learning, for to him have come those things which are most to be desired by strong men — work worth doing and a great opportunity. He is a builder; he is shaping the unknown future. Nothing can be finer than this, for it is far better to create than to destroy.

What are the vital qualifications for the leaders of American youth. They are four, I think, high character, ample learning, proved executive capacity, and the training and experience of a man of the world in the best and broadest sense. As to the first three requisites all persons will, I think, agree. The need of the last qualification is not, perhaps, quite so obvious, yet it is absolutely essential if the head of the great institution of learning is to imbue his students with the right spirit, and send them out to play in the world a part worth playing.

In the gentlemen whom you inaugurate to-day as President of our great Institute of Technology, the high qualifications for such a place which I have enumerated all meet in

**ANNOUNCE-
MENT**

**QUALIFICA-
TIONS FOR
LEADERSHIP**

**PROVED
EXECUTIVE
CAPACITY**

happy combination. He has a high character, generous learning, an assured place in the domain of science. He has proved his executive capacity by his successful administration of a great Government Survey. He has lived in the world of men, labored with them, fought against them, learned that liberality and toleration are not incompatible with an unflinching opposition to wrong, learned also to do justice to opponents, become convinced that it is better to get the best possible than to prate idly about an impossible perfection, find fault perpetually, and get nothing.

He brings to your service and to the broader service of Massachusetts and of the country, all these high qualities. He will send forth his students imbued with his own faith and hope, in harmony with the spirit of the time and the spirit of America. No man, I am sure, will rival him in devotion to his charge or in his admiration for it. But he will not forget that the little world he guides and rules is part of the greater world of the United States, borne on the mighty current of the national life as the tides of ocean bear the ship, and that he who serves the country best in training her sons, best serves the noble institution committed to his care.



**ADDRESS ON BEHALF OF THE FACULTY —
J. M. CRAFTS.**



I ADDRESS you not as ex-president, for that title removes me from the participation in the affairs of the Institute, nor can it be supposed that ex-presidents are illumined by X-rays or by any other peculiar light in their visions of the present or in their retrospect of the past: but a mission has been confided to me, as an old-time professor of this school, as a friend and companion of its teachers, and as one who hopes always to share their interests. I have been requested to speak to you on behalf of the Faculty.

As my mission is to speak for the members of the Faculty and teachers, the consideration for their modesty restricts me in what I can say of them. I cannot follow them as far as I could wish into the class-room, nor dwell upon their comradeship with the students, their endeavor to form character and to build up that knowledge which is power; but I will allow myself to say one thing with reference to the character-making qualities of our whole system, and to show that such work can be done, and well done, outside of the class-room of ethics or moral philosophy, and even without the aid of the cricket or the foot-ball field.

Firstly, in any system of education in art and science by means of work in drawing rooms and laboratories, a large number of teachers must necessarily be employed for a given number of scholars, and this requirement is adding enormously to the cost of education in applied science, which is very different from education by lectures.

A close companionship is the result, and, with the class of students who come to us, an eager desire for acquisition, an early and clear conception of the goal aimed at, and the prevailing conviction that a man would better work in school in the same way that he will have to work afterwards; all these things lead to little necessity for spurring on or for restraint of discipline, and open the field to the best influences that a teacher can bring to bear upon a student.

You, sir, have from the Faculty the same hearty greeting that has been offered to you by the government of the Institute.

GREETING
FROM THE
FACULTY

They welcome you as a man who has trod the same path as themselves, who knows the joys of discovery or even of unsuccessful research as well as its disappointments and long sustained efforts.

They welcome you as a teacher familiar with the great responsibilities of that high office and of its precious opportunities for meeting young men at the time when they are forming their ideals of life.

You will meet with the great body of the Alumni, and oftentimes you will hear some word of gratitude, and a man will tell you how he has walked in the way pointed out to him here.

"The happy warrior who when brought
Among the tasks of real life hath wrought
Upon the plan that pleased his boyish thought."

I am very confident, when I predict for you in the opening of a new epoch of your life, an agreeable situation; for I speak from my own recent experience of a short term in the same office.

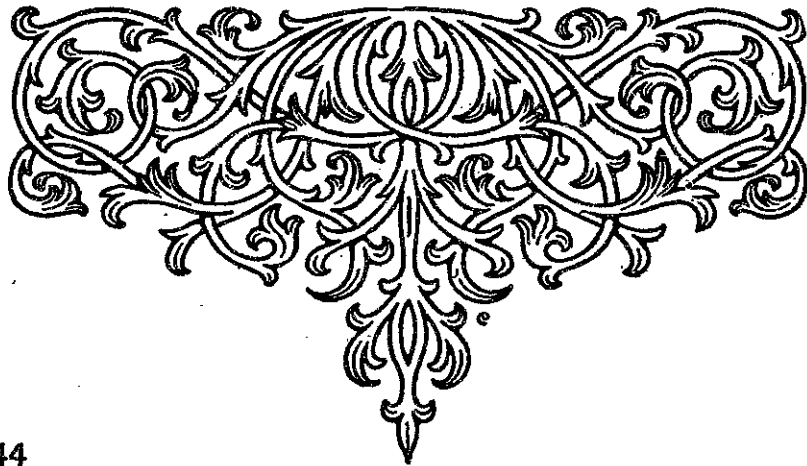
**CO-OPERATION OF THE
FACULTY**

You will receive from the Executive Committee and Faculty judicious support and judicious opposition, and both one and the other will be frank and friendly.

I fancy that in the high government position which you have quitted, conditions may have been more complicated. Here at least they are very simple, and while walking along the same straight road with the Faculty and teachers of this school, I predict for you precious opportunities for companionship and friendship, and I can wish you no better wish than that you should repeat the experience to which I look back with the greatest pleasure.



Prelude and Fugue, G minor Bach
Rendered by Horatio Parker



INAUGURAL ADDRESS OF DR. PRITCHETT



I SHOULD fail to do justice to my own feeling did I not pause for one moment to acknowledge the kindly greeting which has just been extended to me at the beginning of my life among you. For the words of encouragement which have been spoken, for the assurance of coöperation and support, for the cordial personal welcome, I am more grateful than I can say. The response to such words and to such welcome is not to be made at this time and at this place. It can be given only in the years of service which lie before us.

In choosing a subject upon which I might address you to-day, I have felt strongly influenced to call to your attention certain conclusions which touch upon that greater interest which is the common bond which brings us together to-day,—the education of men. In attempting to speak to you of certain phases of higher education, I do not forget in this presence that higher education in this country had its origin in the intellectual hunger and the intellectual aspirations of the early settlers of this city and of this region, and that in addressing you upon any matter connected with education one necessarily approaches a subject to which the most of you have given much thought. Nevertheless, one feels forced to speak, if he speak honestly and with conviction, of that which touches closely his own experience and which concerns deeply, in his view at least, the organization and conduct of public affairs.

It was my fortune some years ago to pass from a university place to that of an executive office of the general government; to go from the work of training students, to men who were recruited almost wholly from the ranks of college graduates. In the attempt to secure for the government service men of the best training, the relation of the educated man to the government, whether as an employee or as a citizen, has been a matter of immediate practical consideration.

There is a saying which is current in the student talk of German universities to the effect that of those who enter the

RELATION
OF EDUCATED MEN
TO THE
STATE

**EDUCATED
MEN IN GOV-
ERNMENT
SERVICE**

university doors one-third breaks down, and one-third goes to the devil, but that the remaining third governs Europe. Such expressions are oftentimes more apt than true; yet, on the other hand, they sometimes represent a popular conviction more correctly than formal tables of statistics, just as a bit of floating straw shows the direction of the current more truthfully than the powerful cruiser. However that may be, the educated man, trained in either the university or the polytechnicum, governs Europe to-day.

No one connected with the government of the United States in any executive capacity can fail to see that the government of this country is also passing rapidly into the hands of educated men. The population of the country at this time is approximately 76,000,000 of people. The number of college trained men is perhaps less than one per cent of the population. From this small percentage, however, are filled a majority of the legislative, executive, and judicial places of the general government which have to do in any large way with shaping the policy and determining the character of the government.

The presence, in constantly growing numbers, of educated men in government service means the displacement of an increasing number of the poorly trained. It is the old story of the untrained against the trained man, and to-day the world recognizes that the day of the untrained man has gone by.

At the present time the federal government is devoting more than ten millions annually to the work of the scientific departments of the government. At the very beginning of organized government in this commonwealth the question of education was one of the first with which the state concerned itself. The principle of state aid to higher education, then recognized, has been since that time accepted by the general government and by every state government.

There can be no question that, judging by the general result attained, the expenditures of the state for higher education are justified by the result, and that the harvest which the state is to reap from its investment has only begun.

Notwithstanding this general outcome, there are certain directions in which the state may reasonably demand additional results. One thing which the government has a right

to expect of those educated in the higher institutions of learning is a decent respect for the service of the state.

I am sure I express the sentiment of all men of serious purpose who have stood in executive places in Washington when I say that there is no greater source of discouragement to those who are honestly striving for good administration than the facility with which good and honest and intelligent men will ascribe the worst motives to those in government office. There is a feeling—and it finds expression perhaps more often in our institutions of learning than elsewhere—that, although a man may be perfectly honest the day before he goes to Washington, he is to be suspected of any crime the day after; and the discouraging part is that the record of a whole life of consistent devotion to duty is no defence whatever against the most sensational accusation.

Let me say that no man can be brought into contact with the actual machinery of our government, can mingle with the men who make our laws, who interpret them and who execute them, without gaining not only a wholesome respect for the service of the state but also a reasonable hopefulness for the future of our institutions.

Another quality of the education given to the youth upon which the state has a right to insist is its catholicity. The state makes no distinction in the matter of education. It aims to make its highest training accessible to the humblest as well as to the most aristocratic. No system of education is a good one for a free state, in which the students and graduates of its institutions of learning get out of touch with the great body of their fellow-citizens. Such a lack of contact between the men of education and those who lack education brings about a feeling of distrust as between men of distinct classes. Under such circumstances, the educated man is likely to lose the perspective of social facts and tendencies, and becomes suspicious and narrow; to feel that the country is fast going to the bad and that the advice and the service of the educated man are not properly appreciated.

It is the protest against this feeling of superiority, whether real or imagined, which is at the basis of most of the objections now offered to a college education as a preparation for the active work of life.

CATHOLIC-
ITY IN
EDUCATION

QUALITY OF
CITIZEN
PRODUCED
BY EDUCA-
TION

In so far as the charge is true that a college training tends to make those who receive it a class apart, and prompts them to make extravagant demands, in just that proportion is it a fair criticism of our system of instruction. We have a right to expect that the college-trained man, more than any other, shall be tolerant and patient. That he shall understand, as no one else can, that truth and honesty and virtue belong to no age and no nation, that they are the property of no party and no sect and no class. And we have a right to expect that, realizing this, he shall have wholesome views regarding human nature. If the college atmosphere does not encourage all this, then the college atmosphere needs quickening. I do believe, however, that the college spirit of to-day is wholesome and catholic; that the men in the higher institutions of learning are in closer touch with the great body of mankind than ever before, and that men who go through college and take their places in the world do so in accordance with the rules of common sense.

But beyond all such questions, and including them all, is another in which the state is vitally interested, and this is the quality of the citizen which our system of education is adapted to produce. This I hesitate to approach, since to discuss it is to open the whole question as to what the object of education is and what subjects should be taught to accomplish that object.

Is education to have for its object the training of the intellect, or is it to aim at the development of character, or is it to undertake both objects? And if the character is to be developed, what are the formal means which are to be used in this development?

These questions have been asked anxiously since systems of education had their beginning. In our day they seem to have settled themselves, so far as the practical efforts of the universities and colleges are concerned, by a process of exclusion. It is assumed, at present, that education — like all other training — has for its end the acquisition of power. In order to acquire power quickly the whole effort in modern education is directed toward the training of the intellect.

There is no disputing the fact that the educated man has in the world a higher potential by reason of his education.

Is it equally true that he has, on the average, a stronger and higher type of character? Is the college man broader in his sympathies, more tolerant, more courageous, more patriotic, more unselfish by reason of his life in the walls of a university or of a technical school? Are the men who come each year, in ever increasing thousands, from the college doors, prepared to shoulder more than their proportionate share of the burdens of the state and of the country, or are they provided with a training which will enable them to more easily escape its obligations?

These are serious questions. In their answer lies the story of what the modern education is doing for the state and for society.

It is not easy to compare the relative moral worth of men and say that one class is on the whole more useful than the other. I know a man who had a theory that character was a direct function of a man's knowledge, that the more a man knew the better he was, and necessarily the more useful to the world. This man undertook to demonstrate his theory by a study of the members of the United States Senate, in which he hoped to show that college training and patriotism go hand in hand. But he was led to results so curious and so mystifying that I would not dare to reproduce them here.

But let there be no misunderstanding in this matter. Whatever our system of education is doing or is leaving undone in the development of character among its students, the state is saying in terms which are becoming every day more emphatic, this:—

However desirable it is to train the mind when it comes to the service of the state (if indeed the same is not true in all service), character is above intellect. It is vastly important to the state that her servants shall be quick, keenwitted, efficient, but it is absolutely necessary that they shall be honest, patriotic, unselfish; that they should have before them some conception of civic duty and proper ideals of civic virtue. Give me men, intellectual men, learned men, skilled men, if possible, but give me men.

Probably no one looks upon Plato's Ideal Republic as the basis for any effort in practical politics, nevertheless it ought to be true that civic virtue should be a part of the life and

RELATION
OF CHARAC-
TER AND
INTELLECT
TO EDUCA-
TION

**GEORGE
WASHINGTON'S
NATIONAL
UNIVERSITY**

of the environment of our seats of learning, and that men, along with the training of their minds, should grow into some sort of an appreciation of their duties to the state and come to know that courage and patriotism and devotion rank higher in this world's service than scholarly finish or brilliant intellectual power.

When we look back on our own history as a nation we can but realize that in the crises of our national life this truth has been forced home to us. In the darkest hours of the Revolution it was the courage, the never-failing patience, the unselfish devotion, in a word, the civic virtue of George Washington which was the real power upon which the people leaned. In the agony of our Civil War, when the fate of the nation trembled in the balance, the character of Abraham Lincoln, his devotion, his hopefulness, above all his knowledge of and his faith in the plain people, counted more than all else in the decision. Neither of these men were the products of university training, nor did they grow up in an academic environment; but each had learned in a school where devotion to the state was the cardinal virtue. When next a great crisis comes, no doubt there will be a Washington or a Lincoln to meet it, but will he come from a university?

When Washington came toward the close of his life he thought deeply over the dangers of the new state, and the necessity for the cultivation of a spirit of intelligent patriotism. As a best means for inculcating this spirit he conceived the idea of a great National University. One of the main objects of this university was to afford to the youth of the country the opportunity for "acquiring knowledge in the principles of politics and good government." The idea was a splendid one, and while the need for a National University no longer exists, in my judgment (unless, indeed, one is needed to teach the principles of good politics), Washington's idea that the university is a place which should train not only the intellect but the character; that it is a place where the student should find an atmosphere adapted not only to the development of accurate thought, but also to a wise and tolerant spirit; that in the university he should gain not only intellectual strength, but also a just concep-

tion of his duty to the state, was a right view. And until this is recognized, until we bring into our college life and into our college training such influences as will strengthen the character as well as the intellect; until the time shall come that the educated man shall by reason of his training be not only more able than his untrained neighbor, but also more patriotic, more courageous, better informed concerning the service of the state and more ready to take up its service; until such a spirit is part of our system of higher education, that system will not have served the ends which education should serve in a free state and for a free people.

And in this connection I cannot refrain from a reference to the aim of those who founded the Institute of Technology, and to the conception of duty which they have impressed upon the institution. The recognition of the value of exact science as a means for the training of the mind came slowly. Even after it did come, men were slow to recognize the value to the race of the results of science. The spiritual side of scientific research is a matter which even to this day men are slow to comprehend, notwithstanding the powerful effect which it has had during the last generation upon the thought and upon the conscience of the world.

"Newton was a great man," writes Coleridge, "but you must excuse me if I think it would take many Newtons to make one Milton."

Forty years ago there were few men in this republic who appreciated in any clear way the value of science in the training of men. To William B. Rogers, and to those who labored with him, belongs the credit of anticipating the value of this training and the demand for it.

The Institute of Technology has its roots in the same soil which supports the industrial life of the city and of the nation. Its contact with the practical side of life is immediate and real. It not only draws its strength thence, but expresses as only that can which has a real and vital connection, the aspiration of those who labor in science for the upbuilding and the improvement of civilization. The Institute of Technology not only aims to serve the people; it is itself of the people.

One of the lessons which the study of exact science leaves

AIM OF THE FOUNDERS OF THE INSTITUTE

with the student is the necessity not only for exact work, but for a high ideal. Science is satisfied with nothing short of perfection, and this principle when it pervades a body of men comes to govern and control the spirit in which their work is done. No better heritage can be left to any institution than that which has been faithfully handed down to you, namely, in education it is not sufficient to be merely accurate, but it is necessary to hold fast to the highest ideal. Once this idea gains control of a student's life, that student will undertake faithfully and courageously whatsoever duties lie before him, whether they concern his professional life, his social life, or his country's service.

PERSONAL GREETING

Let me add, in conclusion a word of personal greeting, speaking as one may when he addresses those who have come together, drawn by a common interest.

In the name of the Corporation, and of the Faculty, and of the Students of the Institute of Technology, I thank you who represent here other institutions for your presence on this occasion. Your coming is not only a source of pleasure but of encouragement to us, and helps to emphasize that spirit of common interest and of common helpfulness which ought ever to mark the relation of those who have to do with education. The Institute of Technology extends to you, and through you to the institutions which you represent, the assurance of its cordial good feeling.

Two of those who sit upon this platform as Presidents of Universities were formerly of the faculty of the Institute. This fact gives to your presence here an additional element of interest, and we extend to you a special greeting.

To Lehigh University, in the sturdy work which she has done and is doing, for the courage with which she has not hesitated to face difficulties, we extend our warm congratulations.

To our near neighbor, the oldest and largest of American Universities, we offer a most hearty greeting. We rejoice in the greatness and in the strength of Harvard University, and take courage in the thought that we join hands with her to-day — as an elder sister — in a work not only for this city and for this commonwealth, but for humanity.

Gentlemen of the Corporation :— In accepting the respon-

sibility which you have this day formally invited me to share with you, I do so hopefully and with full confidence in you, in this community, and in the future. There is no greater work committed to men's hands than that to which we are called. As I think of those who have preceded me in this place; when I call to mind their splendid services to the Institute, to the commonwealth, and to the country, I accept this work with a feeling of great humility, but with the earnest hope that through our common effort the institution may grow, not only in strength, but in usefulness; not only in facilities for work, but in the better understanding of what work means, and that it may ever seek to lead in all that concerns the rational and helpful teaching of applied science.

Gentlemen of the Instructing Staff:— For the cordial welcome to your number, I am most grateful. I come to you with no new message and as the herald of no new gospel. The same spirit of work and of devotion which has been the glory of your body in the past must be our source of strength for the future. In all that leads to the uplifting of technical education, in the development and extension of the work of the institution, in the suggestion of new means by which it can minister more directly to the work of education upon the one side, and to the promotion of scientific research upon the other, I ask your hearty coöperation and assistance. An institution, like an individual, must grow in its experience, in its appreciation of truth, in comprehension of the meaning of art and of science and of life if it is to minister to a growing civilization. The inspiration which shall stand back of this growth must rest, in large measure, upon your zeal and your effort.

Alumni of the Institute:— To each of you has been mailed an invitation to this gathering. These missives have gone to every country and to every climate. Some are at this moment being borne on the backs of men or in snow sledges to the interior of Alaska, to be read months hence amid the winter snows. Some will be read in the tropics, under the glare of a summer sun. Your Alma Mater would gladly have welcomed each one of you this day to her fireside, though the fare be frugal and the feast modest. Since this cannot be, let her invitation carry at least this suggestion.

TO THE COR-
PORATION

TO THE
INSTRUCT-
ING STAFF

TO THE
ALUMNI

TO THE STUDENTS

How farsoever from her halls your path may lead, it can never take you beyond the circle of her affection. The Institute is proud of the men it has sent forth, and she counts upon their loyalty and their devotion. She invites your counsel, your suggestion, your friendly criticism, your help. And while she listens with willing ear to every voice which rings true, she asks you to remember that no greeting so thrills her as that which comes up from one of her own children who is doing a man's work in the world.

Students of the Institution: In a more real sense than any other body, you are the Institute of Technology. As such I salute you to-day, and assure you not only of my earnest wish for your advancement and your success, but also of my wish for your friendship and for your help. I prefer to think of such an institution as that in which we work together, not as an empire governed by the few, but as a republic in which faculty and students alike are charged with the government of the whole body.

I congratulate you in taking up the study of engineering, using that term in the broadest sense. There was never a more opportune time to enter such work, nor was there ever a period in the history of our country when the trained engineer had open before him so attractive a field. This is the day of the trained man, and to him the responsibilities and the rewards will go. To the American engineer a whole series of new problems of the highest interest have in recent years been presented. Railways are to be built, canals are to be cut, a whole empire of desert land is to blossom under his hand. The Pacific ocean and the countries which border upon it are to be the theater of an enormous development. Cables will be laid, cities will be developed, the tropics will be subdued. In all this development the engineer, the trained engineer, is to play a roll that he has never yet played since civilization began. May I hope that you may bear in mind as your ideal of an engineer not only one who works in steel and brick and timber, but one who by the quality of his manliness works also in the hearts of men; one who is great enough to appreciate his duty to his profession, but likewise, and in a larger and deeper sense, his duty to a common country and a common civilization.

JAMES MASON CRAFTS,
The retiring President

THE USHERS



H. V. Allen
 C. W. Adams, '01
 W. T. Aldrich, '01
 F. K. Baxter, Jr., '01
 F. R. C. Boyd, '01
 E. P. Beckwith, '01
 W. I. Beckford, '01
 H. O. Bosworth, '02
 M. C. Brush, '01
 L. S. Butler, '01
 J. Campbell, '01
 L. S. Cates, '02
 H. W. Chambers, '01
 F. W. Coburn, '01
 W. L. Cook, '02
 F. C. Corse
 N. L. Danforth, '01
 F. W. Davis, '01
 R. M. Derby, '01
 W. H. Farmer, '02
 R. M. Field, '03
 M. B. Foster, '01
 F. W. Freeman, '01
 J. C. Fruit, '02
 R. H. Glover, '01
 H. L. Green, '02
 V. T. Holmes, '01
 P. G. L. Hilken, '01
 H. N. Hudson, '02
 A. T. Hyde, '01

C. W. Kellogg, Jr., '02
 H. H. Kennedy, '01
 L. C. Kimball, Jr., '03
 J. B. Laws, '01
 A. E. Lombard, '02
 R. Lowe, '03
 H. S. May, '02
 H. M. McMaster, '01
 L. F. Miller, '01
 C. G. Mixter, '02
 W. J. Mixter, '02
 P. W. Moore, '01
 P. H. Parrock, '01
 R. Proctor, Jr., '02
 A. W. Peters, '01
 P. Player, '01
 A. W. Rowe, '01
 H. H. Saylor, '02
 C. A. Sawyer, Jr., '02
 B. E. Schlesinger, '01
 W. H. Sears, '02
 F. H. Smith, '01
 J. L. Taylor, '02
 E. P. Turner, '02
 H. Turner, '02
 W. W. Walcott, '01
 William Whipple, '01
 Robert White, Jr., '01
 Watkins
 J. R. Whipple, '01

T H E R E I S **M I T** U C H I N T R A N S M I S S I O N W I T H

MANILA ROPE

WORTHY OF CAREFUL INVESTIGATION. WE SHOULD
BE PLEASED TO ASSIST YOU. ASK FOR OUR *BOOKLET*,
MANILA ROPE TRANSMISSION.

"PLYMOUTH"

Cables, Cordage, Bale Ropes, Binder Twines
are the Standard for Quality.

We use the BEST STOCK.

We have the FINEST PLANT.

We are the Longest Established ROPE MAKERS
IN THIS COUNTRY.

PLYMOUTH CORDAGE COMPANY,

NORTH PLYMOUTH, MASS.

G. F. HOLMES, Treasurer.

THE MIDVALE STEEL CO.,

*Locomotive and Car Wheel Tires,
Forgings and Castings,
Bar Steel.*



*Nickel Steel
Forgings
for
Marine Engines*

*O r d n a n c e
Forgings
and
Castings.*



OFFICE AND WORKS:
PHILADELPHIA, PA.



AMERICAN BALANCED VALVES

American Balance Slide VALVE

DESCRIPTION :

A beveled SNAP ring EXPANDED over a CONE and automatically ADJUSTED by steam pressure on its circumference.

Results from this Mechanical Principle :

Greatest balanced area; supported by steam while under steam; self-supporting when not under steam; automatic adjustment, with or without steam; positive action, impossible for ring to stick; absolute steam joints all the time; no lateral wear, rings move as part of cones; no motion; no wear on the tapers, therefore very minimum cost of repairs by duplicates from stock; standard sizes all made to standard gauges and interchangeable; stock carried in stock for new work or repairs; greatest efficiency; most durable; simplest, always most desirable in machinery.

American Balanced Piston VALVE

DESCRIPTION :

The Main Snap Rings Gripped Rigid by a WEDGE Ring operated automatically by Steam Chest Pressure.

Results from this Mechanical Principle :

Absolutely perfect balance; no steam under the rings; rings converted into plugs while work under steam; rings free to adjust themselves to cylinder when not under steam; wide or narrow rings; no lateral wear; no excessive expansion of rings into ports causing breakages; no excessive expansion of rings causing excessive wear at short travel of the valve; no expansion of rings at all while under steam; no lateral motion of ring with or without steam; the minimum and even wear of valve cylinder; continuous, unbroken steam and exhaust lines.

AMERICAN BALANCED ALLEN PORTED VALVE

American Valves are now used by **THREE-FOURTHS** of the Railroads all over the **WORLD**. Applied by all locomotive builders without extra charge.

SATISFACTION GUARANTEED

Photographs, Drawings, Catalogues or Special Designs gladly furnished.

Address nearest office

AMERICAN BALANCE VALVE COMPANY

Main Office, SAN FRANCISCO, CAL.

Eastern Office and Works, JERSEY SHORE, PA.

William Sellers & Co. Incorp.

PHILADELPHIA, PENN.

Manufacturers of

Labor Saving Machine Tools

HIGH-SPEED TRAVELING CRANES
JIB CRANES, FOR RAILROAD AND
GENERAL MACHINE SHOP WORK

Shafting, Hangers, Couplings, Pulleys, etc.

FOR THE ECONOMICAL TRANSMISSION OF POWER.

Improved Injectors for Boilers of all Classes. Turntables for Locomotives,
Railway Cars and Shop Cars. Hydraulic Testing Machines, etc.